

BIG BEAVER SYMPOSIUM

BACKGROUND

EVERYBODY WALKS.

Walking is the most basic form of transportation; however we more often view ourselves as drivers, passengers, and even cyclists, and overlook the walking part of the journey. As a result walking is often disregarded in the quest to build more sophisticated transportation systems.

It’s time to pay attention to the pedestrian. As Troy, and more specifically Big Beaver Road evolves, the desire to walk along and across Big Beaver Road has increased. The City realizes that walking along and across Big Beaver is difficult. That is why we need your help.



Big Beaver Corridor Study adopted in 2006

Vision established for transforming Big Beaver into a World Class Boulevard

Key Concepts:

- 1. Gateways, Districts and Transitions
- 2. Trees and Landscape as “Ceilings and Walls”
- 3. Walking Becomes Entertainment
- 4. Mixing the Uses Turns on the Lights
- 5. The Automobile and Parking are no Longer #1
- 6. Civic Art as the Wise Sage of the Boulevard



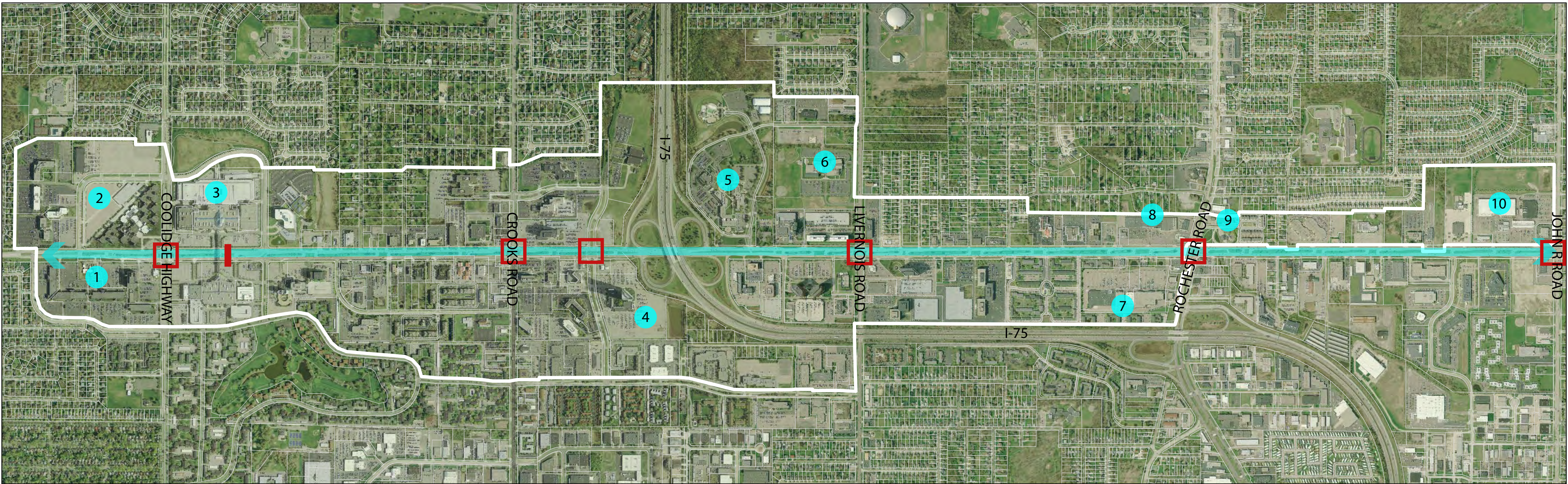
Recent Investment on/near Big Beaver Road

- Granite City Food and Brewery - Restaurant
- Galleria of Troy – Retail and hotels
- Big Beaver Center - Retail and single family residential
- Troy Shoppes - Retail
- Fifth Third Bank – Bank branch
- DMC Children’s Hospital – Hospital
- Amber Town Center Townhomes and Lofts – Loft apartments



Big Beaver Challenges

- Big Beaver is attracting new users/businesses
- New users/businesses are generating more pedestrian activity
- Limited options available to cross Big Beaver
- I-75 acts as physical and mental barrier
- Big Beaver employment and commercial centers are not aligned with existing crossings



TRAFFIC COUNTS	EB	WB
Adams to Coolidge	12,950	12,790
Coolidge to Crooks	14,980	20,970
Crooks to I-75	28,800	27,670
I-75 to Livernois	21,010	20,120
Livernois to Rochester	20,590	20,360
Rochester to John R	24,110	18,700

Source: AADT SEMCOG, 2011

MAP LEGEND

- Big Beaver Road
- Landmark
- Intersection Crossing
- Mid-Block Crossing

- 1. Kresge Foundation
- 2. Vacant Kmart Headquarters
- 3. Somerset Collection
- 4. PNC Tower
- 5. Troy City Hall Campus
- 6. Troy Community Center
- 7. Troy Market Place shopping center
- 8. Troy Commons shopping center
- 9. Gateway Park
- 10. Troy Sports Center

THE PEDESTRIAN SCRAMBLE.

Although intersections represent a very small percentage of road surface mileage, more than one in five pedestrian deaths is the result of a collision with a vehicle at an intersection. Each leg of an intersection may have different characteristics affecting pedestrian or bicyclist safety, therefore a variety of tools should be considered.

- \$\$\$ HIGH COST SOLUTION
None
- \$\$ MEDIUM COST SOLUTION
a. Pedestrian Countdown Timers
b. Accessible Traffic Signal
- \$ LOW COST SOLUTION
c. Leading Pedestrian Intervals
d. Advanced Yield/Stop Lines
e. High Visibility Crosswalks & Paving Treatment



a. Pedestrian Countdown Timers

DESCRIPTION: Devices that provide a numeric count down display that indicates the number of seconds remaining for a pedestrian to complete their crossing of a street.

APPLICATION: Located at every controlled intersection.



b. Accessible Traffic Signal

DESCRIPTION: Accessible pedestrian signals provide supplemental information in non-visual formats, such as audible tones, speech messages, or vibrating surfaces.

APPLICATION: Located at every controlled intersection.



c. Leading Pedestrian Intervals

DESCRIPTION: Leading pedestrian intervals give the pedestrian the WALK signal 3 to 10 seconds before motorists are allowed to proceed through the intersection.

APPLICATION: At major mile intersections with high numbers of conflicts between pedestrians and vehicles turning right.



d. Advanced Yield/Stop Lines

DESCRIPTION: An advanced stop or yield line placed 20 to 50 feet ahead of the crosswalk. A typical stop line on Big Beaver is only 10 feet from the striped crosswalk. The line greatly reduces pedestrian/vehicle conflict by requiring drivers to stop well in advance of a crosswalk.

APPLICATION: At major mile intersections with high numbers of conflicts between pedestrians and vehicles.



e. High Visibility Crosswalks & Paving Treatment

DESCRIPTION: The use of stamped concrete or colored pedestrian crossings in combination with markings, signalization, and illumination to distinguish a "pedestrian space". Varied crossing and paving treatments send a visual cue to motorists. They can also aesthetically enhance a street and be used to delineate separate space for pedestrian or bicyclists.

APPLICATION: At all legs of signalized and stop-controlled intersections. At midblock locations, high visibility crosswalks should be used in conjunction with other crossing measures such as a refuge islands, PHBs, or RRFBs.

MID-BLOCK CROSSINGS

THE SHOREST ROUTE BETWEEN TWO POINTS IS A STRAIGHT LINE.

Pedestrians desire to travel from origin to destination in as near a straight line as is possible. When pedestrian travel involves crossing Big Beaver, many pedestrians do not have close, convenient, or safe options. In most mid-block locations along Big Beaver, either the pedestrian must walk up to a ½ mile to a major mile intersection or play Frogger.

Marked crosswalks alone (i.e., without traffic signals, pedestrian signals, or other substantial crossing improvement) on Big Beaver are insufficient and should not be used unless improvements can be made to increase the safety of pedestrians. Presented are numerous Big Beaver mid-block crossings for consideration.



a. Pedestrian Hybrid Beacon

DESCRIPTION: A Pedestrian Hybrid Beacon (PHB) is a pedestrian-activated warning device located on the roadside or on mast arms over midblock pedestrian crossings. The beacon head consists of two red lenses above a single yellow lens. The beacon rests dark when not in use.

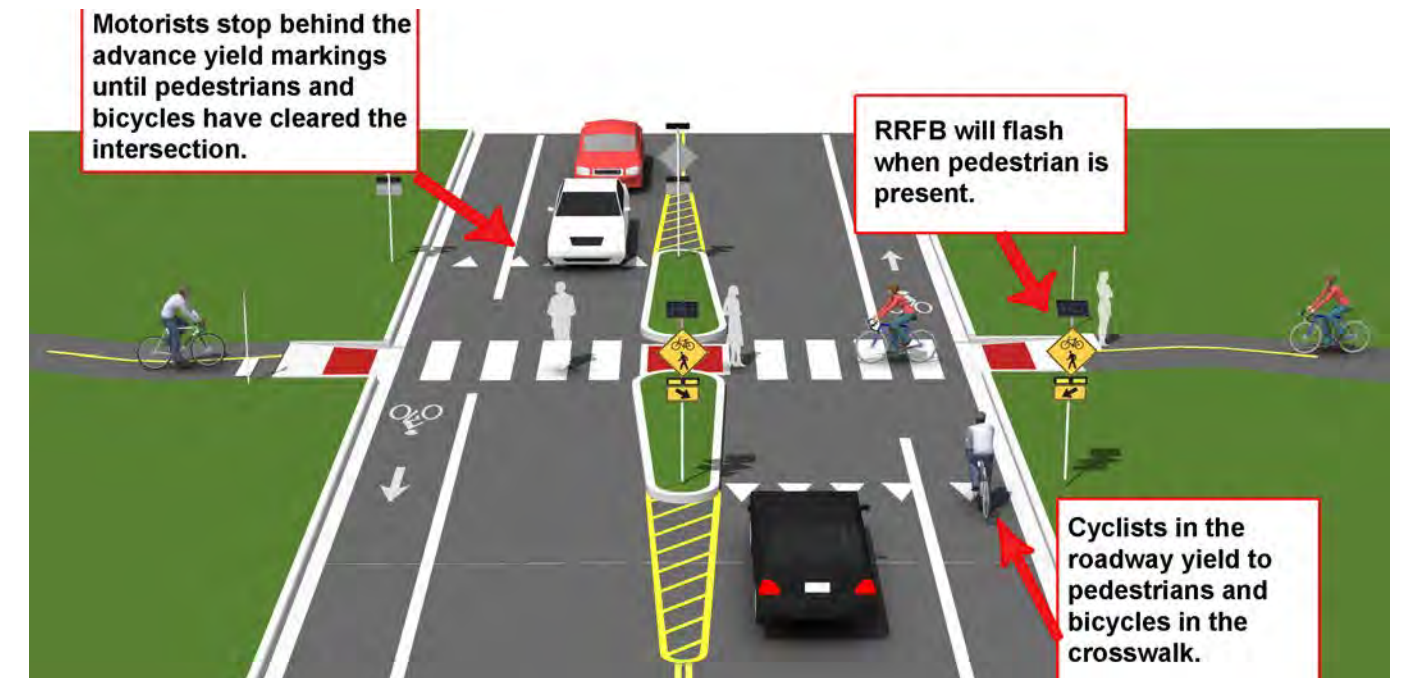
APPLICATION: Located in high pedestrian traffic area where a full traffic signal is not warranted.



d. Mid-Block Z Crossing

DESCRIPTION: Z-crossings are treatments in which the crosswalk is split by a median and is offset on either side of the median. This configuration forces pedestrians to turn in the median and face oncoming traffic before turning again to cross the second half of the crosswalk.

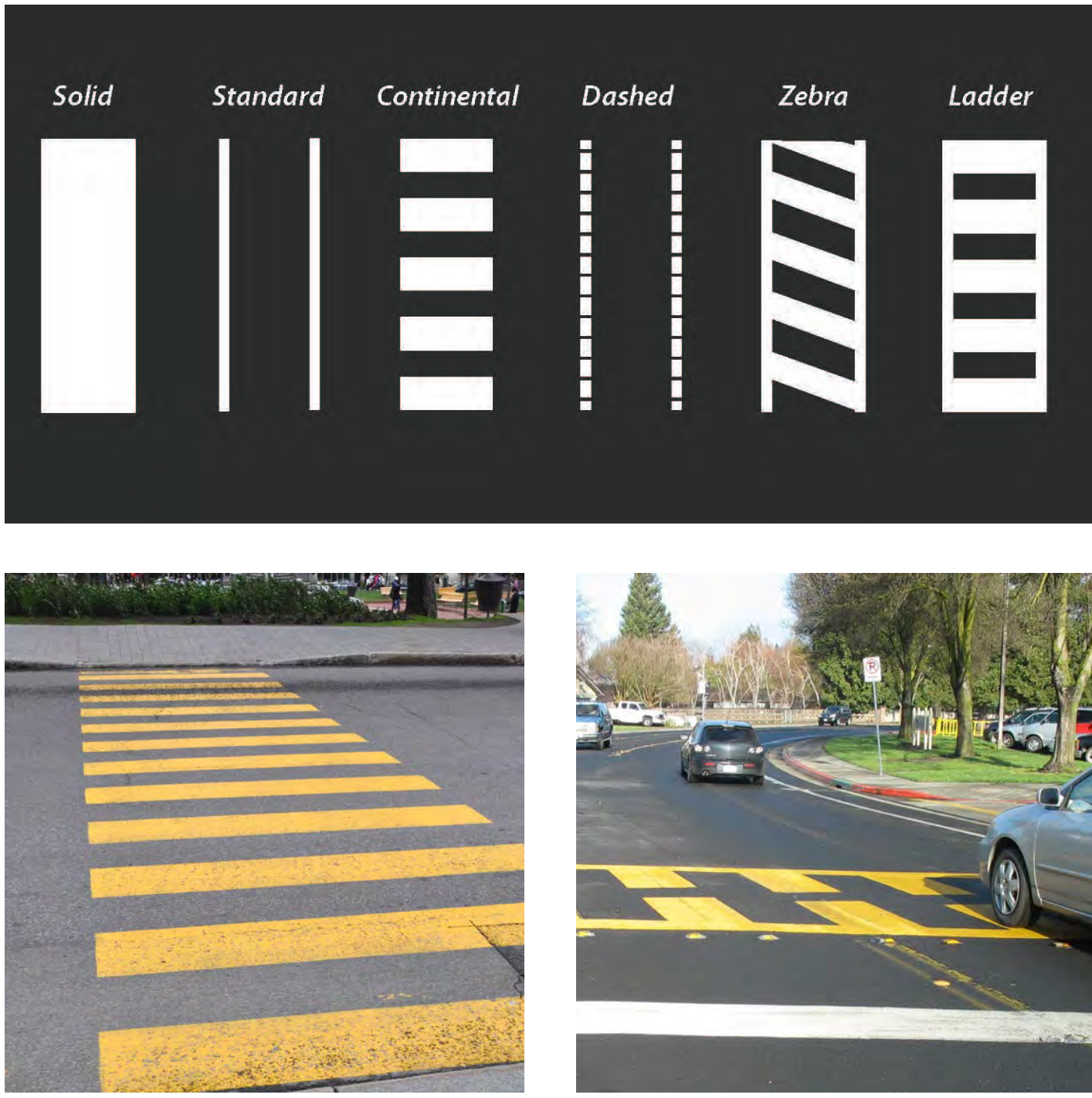
APPLICATION: Potential solution at every pedestrian refuge island crossing.



b. Rectangular Rapid Flash Beacon

DESCRIPTION: A Rectangular Rapid Flash Beacon (RRFB) is a device using LED flashing beacons in combination with pedestrian warning signs, to provide a high-visibility strobe-like warning to drivers when pedestrians are using a crosswalk. Pedestrians push a button to activate rapid flashing yellow LED lights to alert drivers to stop.

APPLICATION: Located in medium pedestrian traffic area where a traffic signal or a PHB is not warranted.



e. High Visibility Crosswalk

DESCRIPTION: The use of stamped concrete or colored pedestrian crossings in combination with markings, signalization, and illumination to distinguish a "pedestrian space". Varied crossing and paving treatments send a visual cue to motorists that the function of a street. They can also create an aesthetic enhancement of a street and be used to delineate separate space for pedestrian or bicyclists.

APPLICATION: At all legs of signalized and stop-controlled intersections. At midblock locations, high visibility crosswalks should be used in conjunction with other crossing measures such as a refuge islands, PHBs, or RRFBs.

\$\$\$ HIGH COST SOLUTION
a. Pedestrian Hybrid Beacon (PHB)

\$\$ MEDIUM COST SOLUTION
b. Rectangular Rapid Flash Beacon (RRFB)
c. Refuge Islands in Median
d. Midblock "Z" Crossing
f. Speed Feedback Sign

\$ LOW COST SOLUTION
e. High Visibility Crosswalks and Paving Treatment



c. Refuge Island in Median

DESCRIPTION: A pedestrian refuge island is a protected area that allows pedestrians to cross one direction of traffic at a time. This makes finding gaps in traffic easier on two-way streets. Some refuge islands on Big Beaver currently exist.

APPLICATION: Additional pedestrian refuge islands should be considered when pedestrians are required to cross multiple lanes in each direction or where insufficient gaps in traffic make pedestrian crossings difficult.



f. Speed Feedback Sign

DESCRIPTION: Speed feedback signs display passing vehicle speeds. These signs have been shown to increase driver compliance with the speed limit. Speed feedback signs help raise awareness of speed, but are not substitutes for physical improvements.

APPLICATION: Speed feedback signs should be installed at locations where speeding occurs frequently and in locations with high populations of pedestrian crossings.

BIG BEAVER SYMPOSIUM

I-75 UNDERPASS

The I-75 Spine.

I-75 bisects Big Beaver Road between Crooks Road and Livernois Road. I-75 creates both a physical and mental barrier. The at-grade I-75 underpass along Big Beaver Road is a dark, dirty, and loud tunnel that is uninviting for pedestrians. The area has no lighting and is in disrepair with beat up fencing, garbage and debris.

In addition to the I-75 underpass, the interstate on and off ramps pose mobility challenges for pedestrians. The crossings are long, and create difficult site angles where pedestrians have difficulties spotting approaching vehicles. This is compounded by high speed vehicles entering or exiting I-75.

\$\$\$ HIGH COST SOLUTION
d. Improve Difficult Site Lines

\$\$ MEDIUM COST SOLUTION
b. Lighting

\$ LOW COST SOLUTION
a. Clean up and Maintain the Interchange
c. Noise
e. High Visibility Crosswalks and Paving Treatment
f. Signage



a. Clean up and maintain the Interchange

DESCRIPTION: As part of “Move Across Troy” the City is working with MDOT to replace the fencing along Big Beaver and under I-75. MDOT and the City are also working together to increase the maintenance and mowing of the turf area within the interchange. The clean-up needs to target the hard surface areas including the area under I-75.

APPLICATION: Within the interchange.



b. Lighting

DESCRIPTION: There are many potential lighting solutions for the walkways under I-75. Creative solutions will improve the pedestrian experience.

APPLICATION: Along the Big Beaver Road sidewalks under I-75.



c. Noise

DESCRIPTION: Noise within the underpass makes the experience uncomfortable. Noise can be reduced with noise reducing insulation and a layer of acoustic absorption materials.

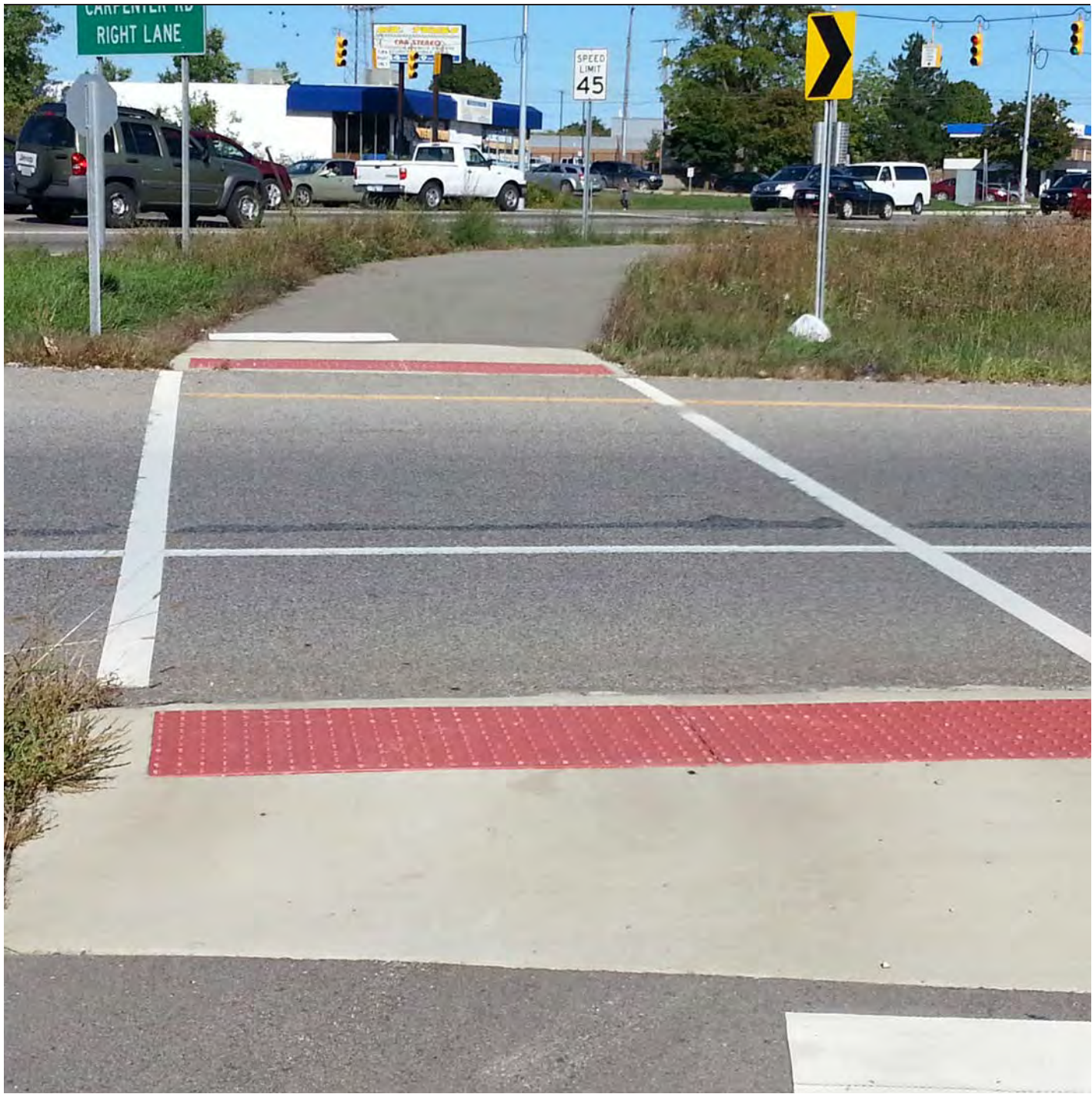
APPLICATION: Under I-75.



d. Improve Difficult Site Lines

DESCRIPTION: Reconfigure interchange on and off ramps or reconfigure pedestrian crossings at the on and off ramps to improve site lines for pedestrians.

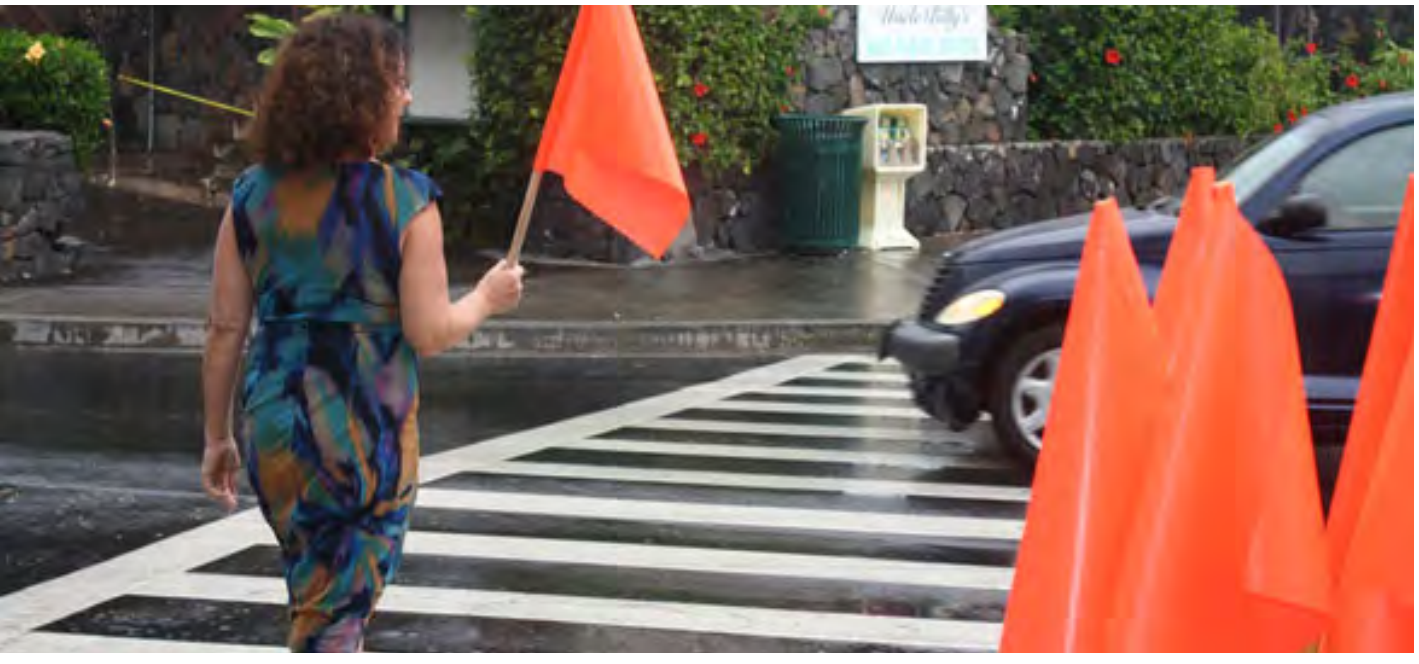
APPLICATION: Within the I-75 intersections.



e. High Visibility Crosswalks and Paving Treatment

DESCRIPTION: Use stamped concrete or colored pedestrian crossings in combination with markings, signalization and illumination to distinguish a pedestrian space. Varied crossing and paving treatments send a visual cue to motorists. They can also create an aesthetic enhancement of a street and be used to delineate separate space for pedestrians.

APPLICATION: Considered for all pedestrian crossings of the on and off ramp to I-75.



f. Signage

DESCRIPTION: Warning signage along the off ramps to signify pedestrian crossings. Stop or yield signs alert drivers at pedestrian crossings, and unsignalized crossings should be marked with pedestrian crossing warning signs for drivers.

APPLICATION: Considered for all the on and off ramps to I-75.

GOING OVER AND UNDER.

Pedestrian Crossings that are separated from the road surface are constructed either above ground as a bridge or below ground as a tunnel. Grade separated crossings are preferred over surface crossings when there is high volume pedestrian and/or bicycle traffic that may conflict with heavy vehicular traffic. They are also effective when connecting high-volume activity centers. The best example of a pedestrian crossing and activity center are the enclosed bridge connecting the Somerset Collection on the north and south sides of Big Beaver.

- \$\$\$ HIGH COST SOLUTION
a. Bridges
b. Tunnels
c. Elevated Walkways
- \$\$ MEDIUM COST SOLUTION
None
- \$ LOW COST SOLUTION
None



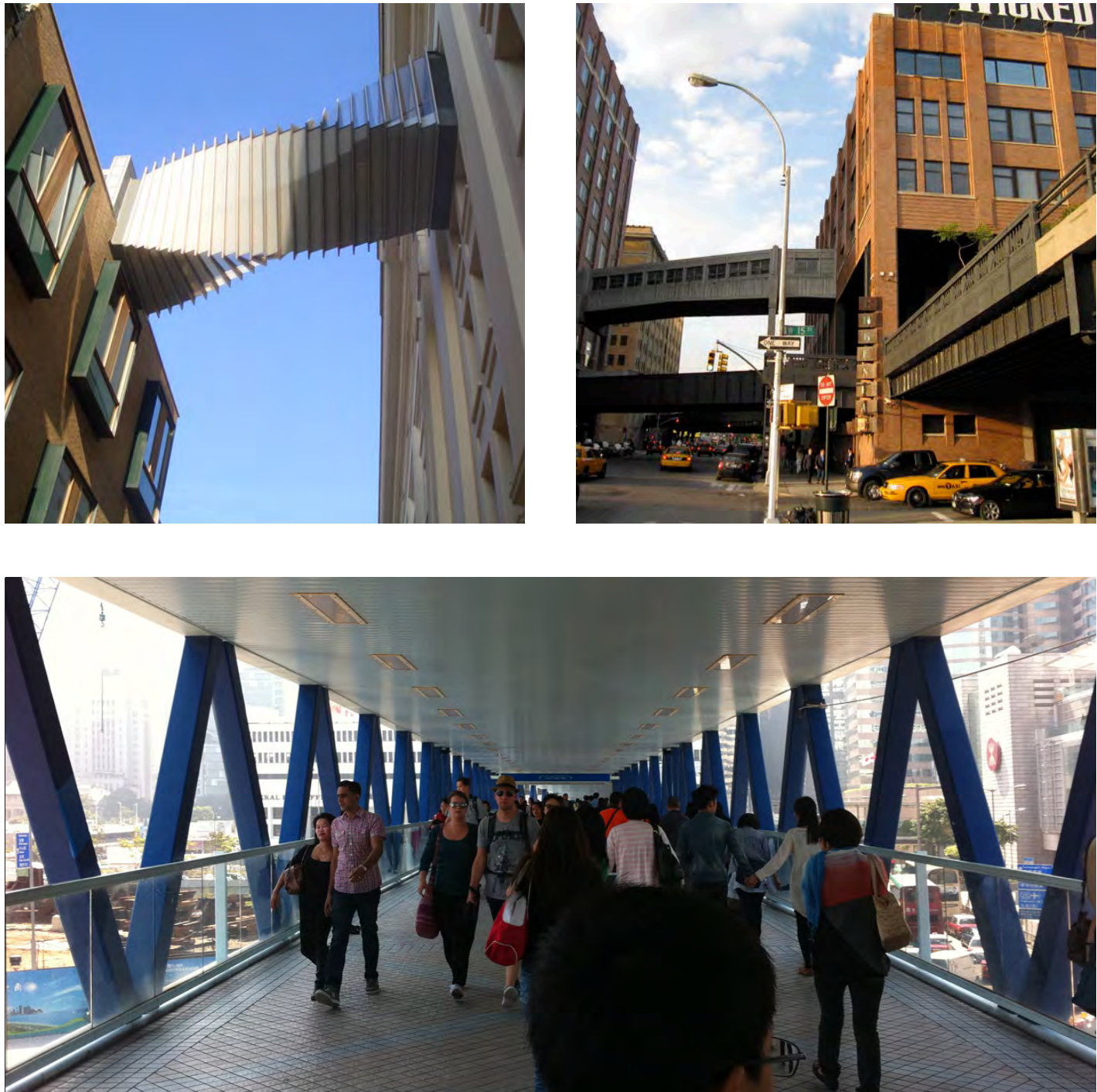
a. Bridges

DESCRIPTION: Bridges may be covered and enclosed or open. The bridge walkway should be at least six (6) feet in width to accommodate for wheelchair use. Barrier free accessibility to the bridge must also be provided. The bridge may be constructed of steel, concrete or other suitable material. Aside from being utilitarian, bridge crossings can also be designed as iconic and altruistic features.



b. Tunnels

DESCRIPTION: Tunnels are constructed below grade. Tunnel construction is also costly and can be challenging due to soils, drainage and utility location. However, once constructed, maintenance is less costly than other forms of grade-separated crossings. Aesthetics, security and drainage, are frequent issues associated with tunnels.



c. Elevated Walkways

DESCRIPTION: Elevated walkways typically connect structures, such as two buildings or a building and a parking structure. The Somerset Collection is connected by an elevated walkway. Elevated walkways are particularly attractive in inclement weather. The proximity of buildings being connected is critical. The cost of connecting Somerset was significant due, in part, to the distances between the buildings. However, new form-based code regulations for Big Beaver require buildings to be located close to the street frontage. Therefore, distance for elevated walkway connections is reduced.

APPLICATION

While grade separated crossings provide the maximum safety, there are also a number of constraints:

- Expense – Bridges and tunnels are expensive to build
- User Acceptance – Many pedestrians and bicyclists will not use a bridge or tunnel they view as inconvenient, and instead use a time saving but hazardous surface crossing
- Maintenance – Bridges and tunnels require long-term and expensive maintenance

Therefore, grade-separated crossings are alternatives when there are high volumes of vehicular traffic that will conflict with high volume of pedestrian/bicycle traffic and safe at-grade solutions are not available.